

Date: Fri, 3 Dec 93 04:30:20 PST
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V93 #131
To: Ham-Ant

Ham-Ant Digest Fri, 3 Dec 93 Volume 93 : Issue 131

Today's Topics:

2m car antenna? (2 msgs)
50 ohm coax to 75 ohm coax transformer
Building a 2m/70cm mobile antenna
First antenna for 160 meters
helical antennas (2 msgs)
LADDER LINE (2 msgs)
Quad spreaders
Setting up a HY-GAIN vertical
Setting up a HY-GAIN vertical.

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Tue, 30 Nov 1993 22:26:08 GMT
From: bruce.cs.monash.edu.au!harbinger.cc.monash.edu.au!msuinfo!uwm.edu!
vixen.cso.uiuc.edu!howland.reston.ans.net!newsserver.jvnc.net!netnews.upenn.edu!
netnews.noc.drexel.edu!@@munnnari.oz.au
Subject: 2m car antenna?
To: ham-ant@ucsd.edu

Anyone have any recommendations for a trunk-mounted 2m or multi-band antenna?
Basically I'm looking for something similar to what I see some people doing
with large cellular antennas, except for ham radio.

Got a new Saturn, and I don't want to permanently mount anything or risk the
paint scratches from a simple magmount antenna. :-)

Bob

--

Bob Snyder N2KGO
snyderra@dunx1.ocs.drexel.edu

MIME, RIPEM mail accepted
finger for RIPEM public key

Date: Wed, 1 Dec 1993 12:53:14 GMT
From: mdisea!mothost!lmpsbbs!news@uunet.uu.net
Subject: 2m car antenna?
To: ham-ant@ucsd.edu

In article Fq9@Dunx1.0CS.Drexel.Edu, snyderra@dunx1.ocs.drexel.edu (Bob Snyder) writes:

}Anyone have any recommendations for a trunk-mounted 2m or multi-band antenna?

}Got a new Saturn, and I don't want to permanently mount anything or risk the
}paint scratches from a simple magmount antenna. :-)

}

}Bob

Bob,

I use the corner of a "Zip Lock" freezer bag under my mag mount. I have had the vehicle painted once and that was the best looking spot on it!

Be careful though, don't just use any type of plastic bag, alot will damage the paint, which is why I was specific in what I mentioned.

Also, Don't be afraid of permanently mounting an antenna. Get one that has a common mount so when you go to sell, you can replace your 2m with a cellurlar antenna and now you have a feature!

73,

Bruce, WB4YUC, e1 YUCCO. . .

Date: Wed, 1 Dec 1993 23:15:12 GMT
From: world!dts@uunet.uu.net
Subject: 50 ohm coax to 75 ohm coax transformer
To: ham-ant@ucsd.edu

In article <CHDJ07.IzG@hpcvsnz.cv.hp.com> tomb@lsid.hp.com (Tom Bruhns) writes:

>Michael A Cecere (mac20@namaste.cc.columbia.edu) wrote:

>: oh yeah, at 900MHz. would this be terribly complicated to homebrew?

>

>: I want to go from f-type connector 75-ohm "cable" coax to, get this,

>: 9913 N-type coax. (the section of 75 ohm is just to match to the transceiver,
>: the 9913 has to run over 100')
>
>An alternative to a 1/4 wave matching section of impedance $\sqrt{75 \times 50}$
>is given in the RSGB VHF/UHF book. It uses only pieces of the two
>lines you wish to match. Pardon the crude diagram:
>
>
> Line1-----line2-----Line1-----line2
>
>where the lengths of the intermediate lines are equal, and for the
>75 ohm to 50 ohm case would be, as I recall, 0.081 wavelengths
>long (accounting for the propagation velocity in the cable). See
>the RSGB book for the formula, and to check on my memory about
>the 0.081. Kinda nice to know you can do the transformation
>without building a section of some intermediate impedance, but
>at 900MHz, these sections are rather short, and you would want
>to be really careful about lengths and assembly techniques. Probably
>easier to use at 2 meters and lower frequency.
>

I think the original poster is interested in working with WaveLAN. If this is the case, and the usage will be for non-amateur use, you might want to call up Joe Reisert (W1JR) at Antennaco (Amherst, NH, I think, but if you need the info, I have it at home). Joe has antennas and other supplies needed to do Wavelan installations (including yagis set up for 75 ohm). From what he told me, the system is limited by the FCC in terms of ERP, not output power, so it may not be necessary to go too far overboard on coax and such.

Of course if the application wasn't WaveLan, please ignore the above!

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Daniel Senie                Internet:    dts@world.std.com
Daniel Senie Consulting      n1jeb@world.std.com
508-365-5352                Compuserve:  74176,1347
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Date: 2 Dec 1993 04:10:15 GMT
From: concert!samba.oit.unc.edu!not-for-mail@decwrl.dec.com
Subject: Building a 2m/70cm mobile antenna
To: ham-ant@ucsd.edu

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Greetings:

I'm kinda new to Ham Radio and am usually
broke as well. Does anyone have any ideas

or plans to build a *cheap* dual band antenna
for 2m/70cm to mount on a truck bumper?

I'm using a Yeasu FT-727 and will probably
be building the 2m amplifier in the Nov.
issue of 73 magazine.

Any comments, suggestions, warnings, plans,
diagrams, etc... will be appreciated.
Responses may be e-mailed to:
a10rxw1@hayek.cob.niu.edu

73 de KF9QQ
-Rich-

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The opinions expressed are not necessarily those of the University of
North Carolina at Chapel Hill, the Campus Office for Information
Technology, or the Experimental Bulletin Board Service.
internet: laUNCHpad.unc.edu or 152.2.22.80

Date: 2 Dec 93 19:15:28 GMT
From: idacrd.ccr-p.ida.org!idacrd!n4hy@uunet.uu.net
Subject: First antenna for 160 meters
To: ham-ant@ucsd.edu

I am a 160 meter operator at N2RM and that is a site that uses inverted
L's. They perform brilliantly and have a nice low angle of radiation.
You do definitely want the performance enhancement you will get from the
vertical portion for the skywave coming in on 160. HOWEVER, the antenna
will be CRAP if you cannot lay out a bundle, and I do mean a bundle of
radials. If you do not have room for quarter wave radials, 30-50 of them,
go with the inverted vee.

Bob

--

Robert W. McGwier | n4hy@ccr-p.ida.org Interests: ham radio,
Center for Communications Research | scouts, astronomy, and golf
Princeton, N.J. 08520 | ASM Troop 5700, ACM Pack 53 Hightstown
(609)-279-6240(v) (609)-924-3061(f) | I used to be a Buffalo . . . NE III-120

Date: 2 Dec 93 19:46:34 GMT
From: ogicse!uwm.edu!math.ohio-state.edu!sdd.hp.com!col.hp.com!srngenprp!
glenne@network.ucsd.edu

Subject: helical antennas
To: ham-ant@ucsd.edu

peake@dstos3.dsto.gov.au (peake@dstos3.dsto.gov.au) wrote:

: The antenna design book by Jasik gives a design for four helices with
: alternating lh/rh polarities. Matching is achieved by noting that the
: feed point impedance of a single helix (as described in the text) is
: about 140 ohms. A tapered line segment of 140 to 200 ohms couples each
: helix to a centre point where 4@200 ohms in parallel gives 50 ohms.
: I made one of these to work at 1800 MHz (non-amateur) but was disappointed
: with the results. The gain was < 7dB. Analysis with a TDR showed that the
: impedance matching seemed to be ok apart from a low impedance dip at about
: the point where the helix feeds through the reflector plate. This is
: only about 3mm thick so I don't see how that could make such a big
: difference. I would be glad of any ideas about this.

I've never combined four helices that way but I have used a tapered line to get from 140 ohms to 50 on a single helix. The result was very satisfactory over a fairly large bandwidth. I don't remember the particulars but it was certainly fine on the ham bands. I think I did it for both 1240-1300 and 420-450.

In the past I've just extended the conductor used for the helix, 1/4" aluminum gas line in one case, and tapered it's distance from the backside of the reflector to create the tapered quarter wave section for matching.

Using a TDR can be a little tricky since it may reveal information about performance considerably beyond the range of expectations. Using a network analyzer with band limited sweep in frequency domain followed by the conversion to time domain might be safer.

I wouldn't expect the small discontinuity going through the reflector to have a lot of impact on inband performance either.

Glenn Elmore n6gn

ax.25 n6gn@wx3k.#nocal.ca.usa.na
amateur IP: glenn@SantaRosa.ampr.org
Internet: glenne@sr.hp.com

Date: 3 Dec 93 00:36:32 GMT
From: ogicse!hp-cv!sdd.hp.com!col.hp.com!srngenprp!glenne@network.ucsd.edu
Subject: helical antennas
To: ham-ant@ucsd.edu

Richard Karlquist (rkarlqu@scd.hp.com) wrote:

: In article <CHF5oI.9Ly@ncifcrf.gov>, Joe Mack <mack@fcs260c.ncifcrf.gov> wrote:
: >I've talked about making linear polarized beams from two helices with another
: >ham and we've both reached the same and rather discomfoting conclusion
: >that the power that is in the direction which is not radiated in the forward
: >direction is instead radiated in weird side lobes. The thinking goes like this-

: Your reasoning would be correct at sufficiently large
: spacings, but for reasonable spacings, by the time the
: angle gets large enough to make the vertical beams add
: instead of cancel, the gain of the vertical beams should
: be less than a dipole. So the combination of the two will

I also think this is correct. If only forward gain is considered, antenna spacing wants to be large enough so that the individual antennas don't share each other's aperture; the power can only be "caught" once and all the best of antennas can do is perfectly capture all power hitting its aperture.

However, at very wide spacings the angle at which the sidelobes start to get bad decreases. This means that short antennas don't want to be separated a large amount. There have been some rules-of-thumb to address this. One old one (I'm not saying it is correct) is to space yagis by a boomlength.

I believe there are some papers which address this issue. I vaguely remember that there is one by Silver which talks about what the first sidelobe level should be for some optimum gain/pattern circumstance. Something on the order of -12 dB is what I remember but I don't know how it is to be interpreted.

: to say radar) it is not a big deal. [Disclaimer: I've
: never built this antenna, so this is just my opinion of
: the theory]
: Rick N6RK

And I've never measured stacked counter-polarized helices either. However, I would think that a similar argument could be applied to stacked anything. At some angle things add the "wrong" way. You just want to be sure that the resulting vector isn't big enough to be a problem at any angle of interest.

Glenn Elmore n6gn

ax.25 n6gn@wx3k.#nocal.ca.usa.na
amateur IP: glenn@SantaRosa.ampr.org
Internet: glenne@sr.hp.com

Date: 1 Dec 1993 16:45:43 GMT
From: organpipe.uug.arizona.edu!helium!hlester@uunet.uu.net
Subject: LADDER LINE
To: ham-ant@ucsd.edu

In article <01H5YMHPZUIG8Y62MD@wl.aecl.ca>, <MCILWAINA@wl.aecl.CA> wrote:
>

>I'm feeding a G5RV with 300 Ohm twin lead (low loss foam dielectric from
>RS)directly from a tuner. I am wondering whether I would be further
>ahead using 450 Ohm ladder line. I am concerned about the wire-to-wire

My understanding is that you should NOT use twinlead with a FOAM dielectric.
For that reason alone, 450 ladder line is much preferred. Since you're
planning on running as much as 500w peak, even regular tv twinlead may be
insufficient.

Howard

Date: 1 Dec 1993 08:52:45 -0800
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!cs.utexas.edu!asuvax!
chnews!ornews.intel.com!ornews.intel.com!not-for-mail@network.ucsd.edu
Subject: LADDER LINE
To: ham-ant@ucsd.edu

In article <01H5YMHPZUIG8Y62MD@wl.aecl.ca> MCILWAINA@wl.aecl.CA writes:
>

>I'm feeding a G5RV with 300 Ohm twin lead (low loss foam dielectric from
>RS)directly from a tuner. I am wondering whether I would be further
>ahead using 450 Ohm ladder line....

My limited experience with 300 ohm twin lead is that it changes
characteristics drastically when its wet. I can tell this by changes
in the tuning on my Matchbox as well as some trouble getting a match
when its wet. The 450 ohm stuff seems much better in this respect.

--
zardo@ornews.intel.com WA7LDV

Date: 2 Dec 93 03:29:55 GMT
From: ogicse!uwm.edu!spool.mu.edu!sdd.hp.com!nobody@network.ucsd.edu

Subject: Quad spreaders
To: ham-ant@ucsd.edu

I'm trying to hack together a quick 3-el 10 meter quad for next weekend. What's the theory on quad spreaders? Must they be non-metallic? Does anyone have a decent source for fiberglass spreaders? I was going to use bamboo, but I can't find any locally. (Except for live bamboo plants!)

Thanks.

--

Holt Mebane, N4HR
Hewlett-Packard
San Diego Technical Graphics Division
619-592-4882

Date: 3 Dec 93 11:32:49 GMT
From: news-mail-gateway@ucsd.edu
Subject: Setting up a HY-GAIN vertical
To: ham-ant@ucsd.edu

Thanks to the folks who were kind enough to help. In case there is someone else with a similar question: HY-GAIN is a part of Telex. I just asked for technical support, and they promised to send me the relevant papers. Very classy.

Jim KB2HEO
Jim Hefferon Math, St.-Michael's College, Colchester VT, USA 05439
internet: hefferon@smcvax.smcvt.edu (802) 654-2677

Date: 2 Dec 93 14:26:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: Setting up a HY-GAIN vertical.
To: ham-ant@ucsd.edu

Hello,
I'm a Novice. I got an antenna as part of a package (along with a tranciever, etc.) that has no documentation. I was wondering if some kind soul could give me some hints as to how to proceed. I'm specifically worried about length to which the sections should be telescoped, but I'm grateful for any pointers.

Here is a picture:

(I apologize if this is too much

